

I claim:

1. A tunable, reconfigurable optical add/drop multiplexer comprising:
 - (a) a first signal routing component; and
 - (b) at least one wavelength selective switch device having an input port and an output port, said input port being optically coupled to said first signal routing component, said wavelength signal selective switch being wavelength tunable, so as to allow a selected wavelength to be routed to said first signal routing component and the rest of the wavelengths to be routed to said output port.
2. The tunable, reconfigurable optical add/ drop multiplexer of claim 1 wherein said selected wavelength is reflected towards said first signal routing component.
3. The tunable, reconfigurable optical add/ drop multiplexer of claim 1 wherein first signal routing component is a circulator.
4. A reconfigurable optical add/drop multiplexer according to claim 1, further comprising a second signal routing component coupled to said output port.
5. The tunable, reconfigurable optical add/drop multiplexer according to claim 1, wherein second signal routing component is adapted to route an additional selected wavelength signal to said selective switch device through said output port.
6. The tunable, reconfigurable optical add/drop multiplexer according to claim 1, wherein said first signal routing component is an optical circulator.
7. A reconfigurable optical add/drop multiplexer according to claim 1, wherein said second signal routing component is an optical circulator.
8. The tunable, reconfigurable optical add/ drop multiplexer according to claim 1 wherein said wavelength selective switch device includes a wavelength tunable grating.
9. A wavelength tunable switching device comprising:
 - (a) an input port and an output port;
 - (b) a first optical waveguide;

(c) a second optical waveguide, said second optical waveguide having a wavelength tunable, wavelength selectable optical component;

(d) a first switch selectively coupled to said first or said second optical waveguide for coupling signal light from said input port into one or another of said waveguides; and

(e) a second switch selectively coupled to said first or said second optical waveguide for coupling said signal light from one of said first and second optical waveguides into said output port.

10. The switching device according to claim 9, wherein said first and second optical waveguides are optical fibers.

11. The switching device according to claim 9, wherein said wavelength tunable, wavelength selectable optical component is a Bragg grating.

12. The switching device according to claim 9, wherein said first switch is a 2x2 switch.

13. The switching device according to claim 9, wherein said second switch is a 2x2 switch.

14. The switching device according to claim 9, further comprising:

- (a) a wavelength selector; and
- (b) a wavelength switch actuator.

15. The switching device according to claim 14, wherein said actuator is a heater.

16. The switching device according to claim 14, wherein said actuator is a tension actuator.

17. The switching device according to claim 14, wherein said actuator is a compression actuator.

18. A method of switching optical signals, said method comprising the steps of:

- (a) switching the switching device to a pass through state;
- (b) tuning a wavelength selective optical component to act on a specific signal wavelength; and

- (c) switching the switching device to operate in a drop/ add state.

19. The method according to claim 18, wherein said tuning is actuated through heating, compression, or tensioning.